AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

1. (cancelled)

2. (cancelled)

3. (currently amended) The system of claim [[1]] 8 wherein the sliding window filter is adapted to generate the upper confidence bounds and lower confidence bounds through linear regression and statistical inference of the data set.

4. (previously presented) The system of claim 3 wherein the sliding window filter is adapted to perform the statistical inference using Student-t statistics.

5. (currently amended) A trending system for trending data from a physical system, the trending system comprising: ~~The system of claim 1 further comprising~~

a sliding window filter, the sliding window filter adapted to receive a data set from the physical system, the data set comprising a plurality of data points, the sliding window filter selecting multiple data windows in the data set, with each of the data windows including a subset plurality of the data points in the data set, and with adjacent windows in the multiple data windows overlapping in the data set, the sliding window filter adapted to generate upper confidence bounds and lower confidence bounds for each data point using each of the multiple data windows that includes the data point, the sliding window filter adapted to select an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point, and wherein the sliding window filter is adapted to generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point; and

a trend change detection mechanism, the trend change detection mechanism adapted to determine a first convex hull for a set of upper confidence bounds and a second convex hull for a set of lower confidence bounds, the trend change detection mechanism adapted to compare the first convex hull and the second convex hull to determine a transition point in the data set, the trend change detection mechanism adapted to determine an estimated trend of the data set based on the transition point and the set of upper confidence bounds and the set of lower confidence bounds.

6. (previously presented) The system of claim 5 wherein the trend change detection mechanism is adapted to compare the first convex hull to the second convex hull by determining if the first convex hull and the second convex hull intersect.

7. (previously presented) The system of claim 5 wherein the trend change detection mechanism is adapted to compare the first convex hull and the second convex hull to determine a transition point in the data stream by determining if the first convex hull and the second convex hull intersect, and by iteratively discarding points in the data set and generating a new first convex hull and a new second convex hull until there is no intersection between the new first convex hull and the new second convex hull.

8. (currently amended) A trending system for trending data from a physical system, the trending system comprising: ~~The system of claim 1 wherein the trending system further comprises~~

a sliding window filter, the sliding window filter adapted to receive a data set from the physical system, the data set comprising a plurality of data points, the sliding window filter selecting multiple data windows in the data set, with each of the data windows including a subset plurality of the data points in the data set, and with adjacent windows in the multiple data windows overlapping in the data set, the sliding window filter adapted to generate upper confidence bounds and lower confidence bounds for each data point using each of the multiple data windows that includes the data point, the sliding window filter adapted to select an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point, and wherein the sliding window filter is adapted to generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point; and

an outlier elimination mechanism, the outlier elimination mechanism adapted to remove statistical outliers in the data set by generating a first prediction cone for data points in a left sample window, generating a second prediction cone for data points in a right sample window, and determining if data points in a test window reside in the first prediction cone and the second prediction cone.

9. (previously presented) The system of claim 8 wherein the outlier elimination mechanism is adapted to generate the first prediction cone and the second prediction cone by linear regression of the data points in the left sample window and linear regression of the data points in the right sample window.

10. (previously presented) The system of claim 9 wherein the outlier elimination mechanism is adapted to move the left sample window, right sample window, and test window through the data set to remove outliers through out the data set.

11. (previously presented) The system of claim 8 wherein the outlier elimination mechanism is adapted to determine outliers by a weighted reciprocal of confidence intervals generated by prediction cones.

12. (cancelled)

13. (currently amended) The system of claim [[1]] 8 wherein the physical system comprises an aircraft system.

14. (cancelled)

15. (cancelled)

16. (currently amended) The method of claim ~~14~~ 21 wherein the step of generating upper confidence bounds and lower confidence bounds comprises generating through a linear regression and statistical inference.

17. (original) The method of claim 16 wherein the statistical inference comprises using student-t statistics.

18. (currently amended) A method of trending data from a physical system, the method comprising the steps of: ~~The method of claim 14 further comprising the step of~~

a) receiving, from the physical system, a data set comprising a plurality of data points;

b) selecting multiple data windows in the data set, each of the data windows including a subset plurality of data points, and with adjacent windows in the multiple data windows overlapping in the data set;

c) generating upper confidence bounds and lower confidence bounds for each of the data points using each of the multiple data windows that includes the data point;

d) selecting an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds; and

e) generating a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point;

f) generating a first convex hull from a first set of upper confidence bounds generating a second convex hull from a second set of lower confidence bounds[[,]]; and

g) ~~and further comprising the step~~ determining a transition point in the data set from the first convex hull and the second convex hull.

19. (original) The method of claim 18 wherein the step of determining a transition point in the data stream from the first convex hull and the second convex hull comprises determining if the first convex hull and the second convex hull intersect.

20. (original) The method of claim 18 wherein the step of determining a transition point in the data stream from the first convex hull and the second convex hull comprises comparing the first convex hull to the second convex hull to determine if the first convex hull and the second convex hull intersect, and further comprises iteratively discarding points in the data set and generating a new first convex full and a second new convex full until there is no intersection between the first new convex hull and the second new convex hull.

21. (currently amended) A method of trending data from a physical system, the method comprising the steps of: ~~The method of claim 14 further comprising the step of~~

a) receiving, from the physical system, a data set comprising a plurality of data points;

b) selecting multiple data windows in the data set, each of the data windows including a subset plurality of data points, and with adjacent windows in the multiple data windows overlapping in the data set;

c) generating upper confidence bounds and lower confidence bounds for each of the data points using each of the multiple data windows that includes the data point;

d) selecting an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds; and

e) generating a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point;

f) removing outlier data from the data stream by generating a first prediction cone for data points in a left sample window, generating a second prediction cone for data points in a right sample window, and determining if data points in a test window reside in the first prediction cone and the second prediction cone.

22. (original) The method of claim 21 wherein the first prediction cone and the second prediction cone are generated by linear regression of the data points in the left sample window and linear regression of the data points in the right sample window.

23. (original) The method of claim 21 comprising the step of moving the left sample window, right sample window and test window through the data set to remove outliers through out the data set.

24. (cancelled)

25. (currently amended) The method of claim [[14]] 21 wherein the physical system comprises an aircraft system.

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (cancelled)

30. (currently amended) The program product of claim 35 [[26]] wherein the sliding window filter is adapted to generate the upper confidence bounds and lower confidence bounds through linear regression and statistical inference of the data set.

31. (previously presented) The program product of claim 30 wherein the sliding window filter is adapted to perform the statistical inference using Student-t statistics.

32. (currently amended) A program product comprising: ~~The program product of claim 26 wherein the trending program further comprises~~

a) a trending program, the trending program including:

a sliding window filter, the sliding window filter adapted to receive a data set from the physical system, the data set comprising a plurality of data points, the sliding window filter selecting multiple data windows in the data set, with each of the data windows including a subset plurality of the data points in the data set, and with adjacent windows in the multiple data windows overlapping in the data set, the sliding window filter adapted to generate upper confidence bounds and lower confidence bounds for each data point using each of the multiple data windows that includes the data point, the sliding window filter adapted to select an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point, and wherein the sliding window filter is adapted to generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point;

a trend change detection mechanism, the trend change detection mechanism adapted to determine a first convex hull for a set of upper confidence bounds and a second convex hull for a set of lower confidence bounds, the trend change detection mechanism adapted to compare the first convex hull and the second convex hull to determine a transition point in the data set, the trend change detection mechanism adapted to determine an estimated trend of the data set based on the transition point and the set of upper confidence bounds and the set of lower confidence bounds; and

b) computer-readable medium bearing said trending program.

33. (previously presented) The program product of claim 32 wherein the trend change detection mechanism is adapted to compare the first convex hull to the second convex hull by determining if the first convex hull and the second convex hull intersect.

34. (previously presented) The program product of claim 32 wherein the trend change detection mechanism is adapted to compare the first convex hull and the second convex hull to determine a transition point in the data stream by determining if the first convex hull and the second convex hull intersect, and by iteratively discarding points in the data set and generating a new first convex hull and a new second convex hull until there is no intersection between the new first convex hull and the new second convex hull.

35. (currently amended) A program product comprising: ~~The program product of claim 26 wherein the trending program further comprises~~

a) a trending program, the trending program including:

a sliding window filter, the sliding window filter adapted to receive a data set from the physical system, the data set comprising a plurality of data points, the sliding window filter selecting multiple data windows in the data set, with each of the data windows including a subset plurality of the data points in the data set, and with adjacent windows in the multiple data windows overlapping in the data set, the sliding window filter adapted to generate upper confidence bounds and lower confidence bounds for each data point using each of the multiple data windows that includes the data point, the sliding window filter adapted to select an upper confidence bounds and a lower confidence bounds for each data point that results in the smallest confidence interval between the upper confidence bounds and lower confidence bounds for that data point, and wherein the sliding window filter is adapted to generate a filtered estimate of the data set from the selected upper confidence bounds and lower confidence bounds for each data point;

an outlier elimination mechanism, the outlier elimination mechanism adapted to remove statistical outliers in the data set by generating a first prediction cone for data points in a left sample window, generating a second prediction cone for data points in a right sample window, and determining if data points in a test window reside in the first prediction cone and the second prediction cone; and

b) computer-readable medium bearing said trending program.

36. (previously presented) The program product of claim 35 wherein the outlier elimination mechanism is adapted to generate the first prediction cone and the second prediction cone by linear regression of the data points in the left sample window and linear regression of the data points in the right sample window.

37. (previously presented) The program product of claim 36 wherein the outlier elimination mechanism is adapted to move the left sample window, right sample window, and test window through the data set to remove outliers through out the data set.

38. (previously presented) The program product of claim 35 wherein the outlier elimination mechanism is adapted to determine outliers by a weighted reciprocal of confidence intervals generated by prediction cones.

39. (cancelled).

40. (currently amended) The program product of claim [[26]] 35 wherein the physical system comprises an aircraft system.

41. (new) The program product of claim 32 wherein the physical system comprises an aircraft system.

42. (new) The program product of claim 32 wherein the sliding window filter is adapted to generate the upper confidence bounds and lower confidence bounds through linear regression and statistical inference of the data set.

43. (new) The system of claim 5 wherein the physical system comprises an aircraft system.

44. (new) The system of claim 5 wherein the sliding window filter is adapted to generate the upper confidence bounds and lower confidence bounds through linear regression and statistical inference of the data set.

45. (new) The method of claim 18 wherein the physical system comprises an aircraft system.

47. (new) The method of claim 18 wherein the step of generating upper confidence bounds and lower confidence bounds comprises generating through a linear regression and statistical inference.